



HUNGARIAN **DEMOGRAPHIC**
RESEARCH INSTITUTE

Fears and risks about the fiscal impact of population ageing

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Motivation

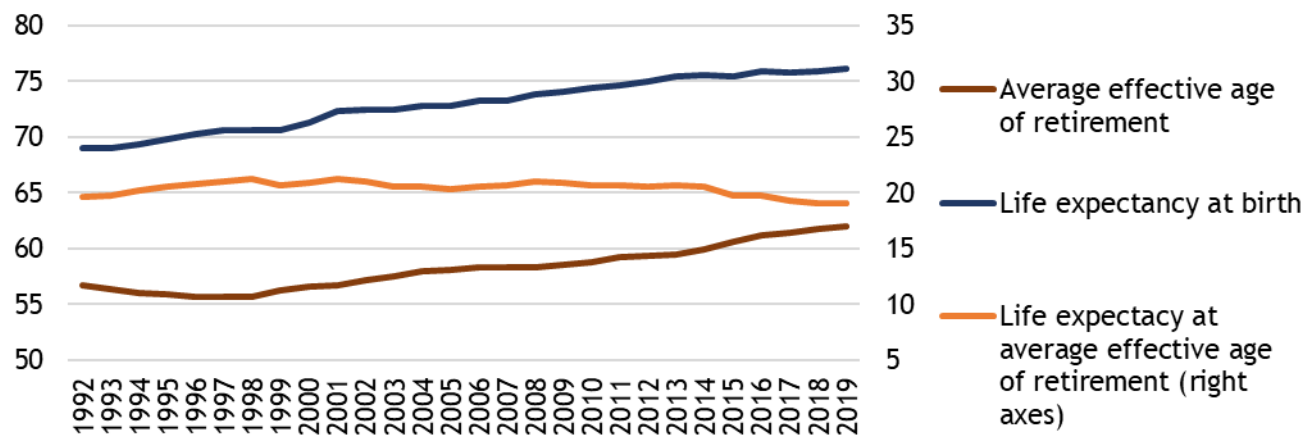
- **Opinion** you often meet in Hungary:

„I don't care about social security contribution, I won't receive any pension anyway”
- The picture is **more complex** and maybe not so dark
- There are several estimates about the **fiscal burden of population ageing** (OECD, European Commission, IMF, Ministry of Finance)
- Less publicity: the **effect of the different factors** on the expected fiscal burden of population ageing
- This is not a policy paper but a **technical assessment**....at a very early stage



Framework of Research

- Scope: Fiscal burden of population ageing – 2 channels
 - Labour **taxes** (personal income tax + social security contributions)
 - Old age **pension**
- Factors which are examined:
 - **Demographic** factors (fertility, mortality, migration)
 - **Fiscal** factor (method of indexation of pensions)
 - **Economic** factor (average effective age of retirement)



Source:
Gál-Radó (2019)



Methodology

- Population projection to 2050
 - Fertility, mortality, migration - depends on the scenarios
- Projection of economic and fiscal variables
 - Real growth of gross domestic product – *technical assumption: 2%*
 - Employment rate by age group – depends on the scenarios
 - Average gross labour income – *move together with the real GDP*
 - Labour income by age and sex – *stable: HCSO 2019*
 - Labour tax – *Implicit tax rate (2019): 44%*
 - Indexation of pension – depends on the scenarios

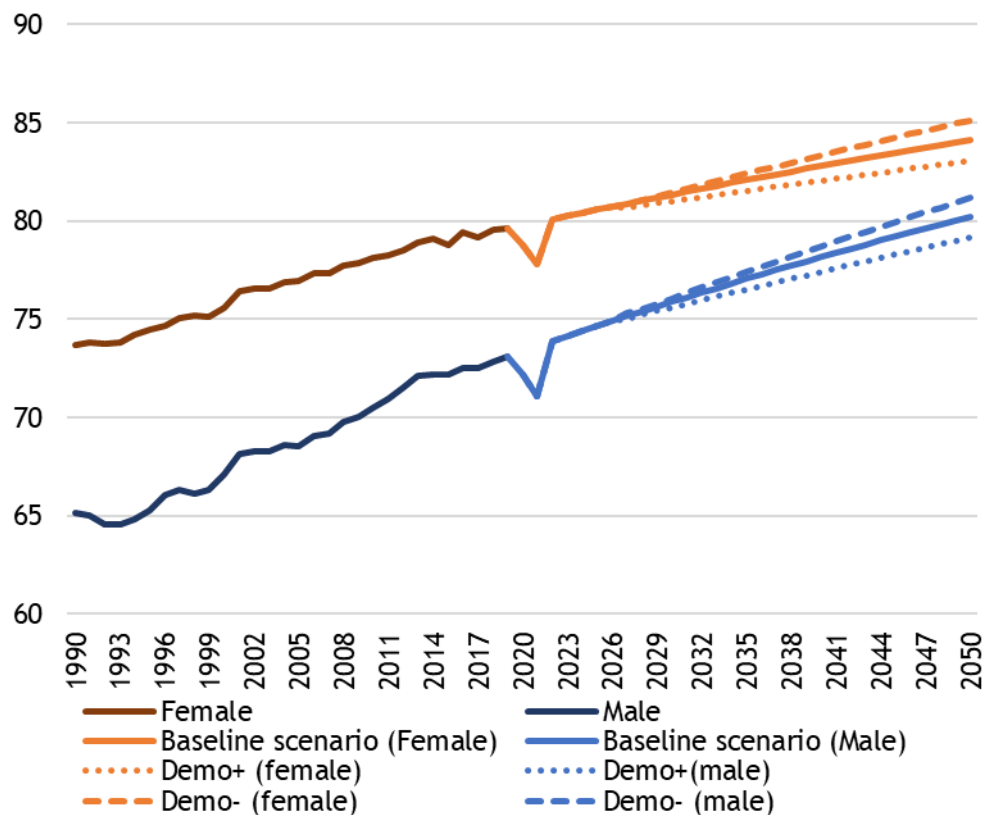


PARAMETERS OF THE PROJECTION



Demographic factors - mortality

Life expectancy at birth



- Projection with stochastic mathematical **model**: Lee-Carter (1992) and Lee-Miller (2001)

Baseline scenario:

- Effect of Covid19: 2020-21
- **Life expectancy at birth:**
 - Female: 79,6 ➡ 84,1
 - Male: 73,1 ➡ 80,2
- **Increase:**
 - Female: 4,5
 - Male: 7,1

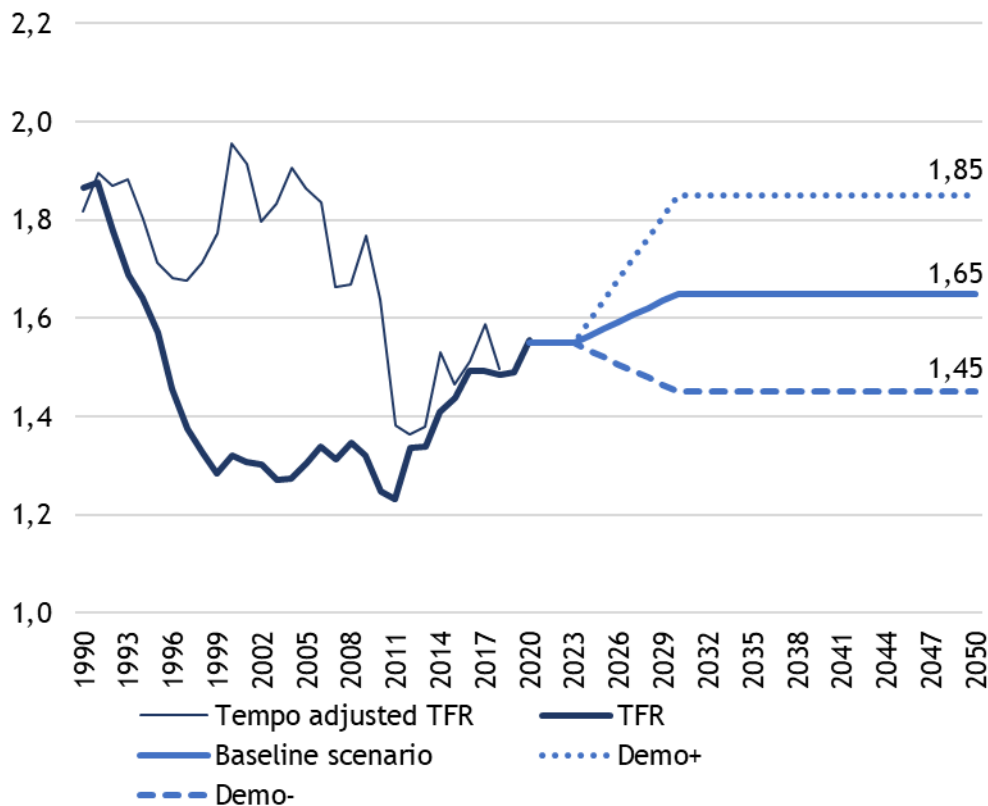
Demo+: minus 1 year

Demo -: plus 1 year



Demographic factors - fertility

Total fertility rate



- Increase in the last years
- Tempo adjusted: the timing effect is taken to account
- Co-movement in the last year – end of postponing

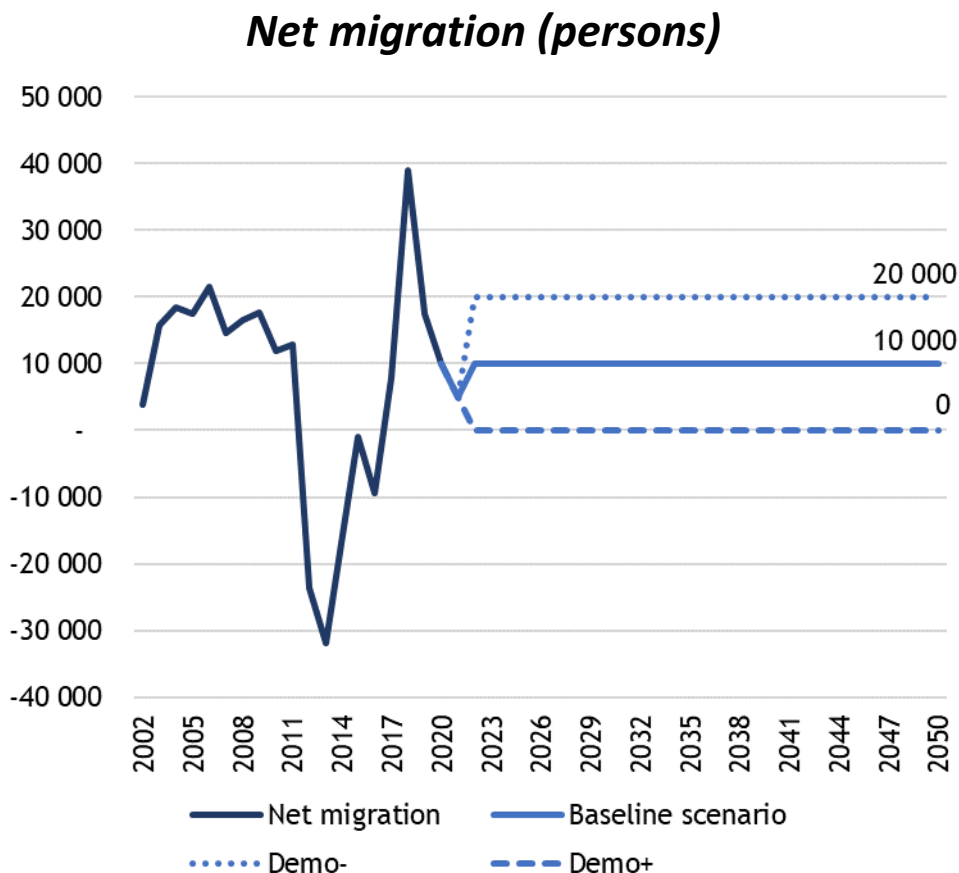
Baseline scenario:

- 1,65: The average of the forecasts (Kapitány-Spéder, 2018)

Demo+: +0,2 } Unlikely but not unrealistic
 Demo-: -0,2 }



Demographic factors - migration



- Difficult to measure, difficult to forecast
- Mostly positive in the last two decades
- The mirror statistics are taken to account

Baseline scenario:

+ 10 000 persons per year

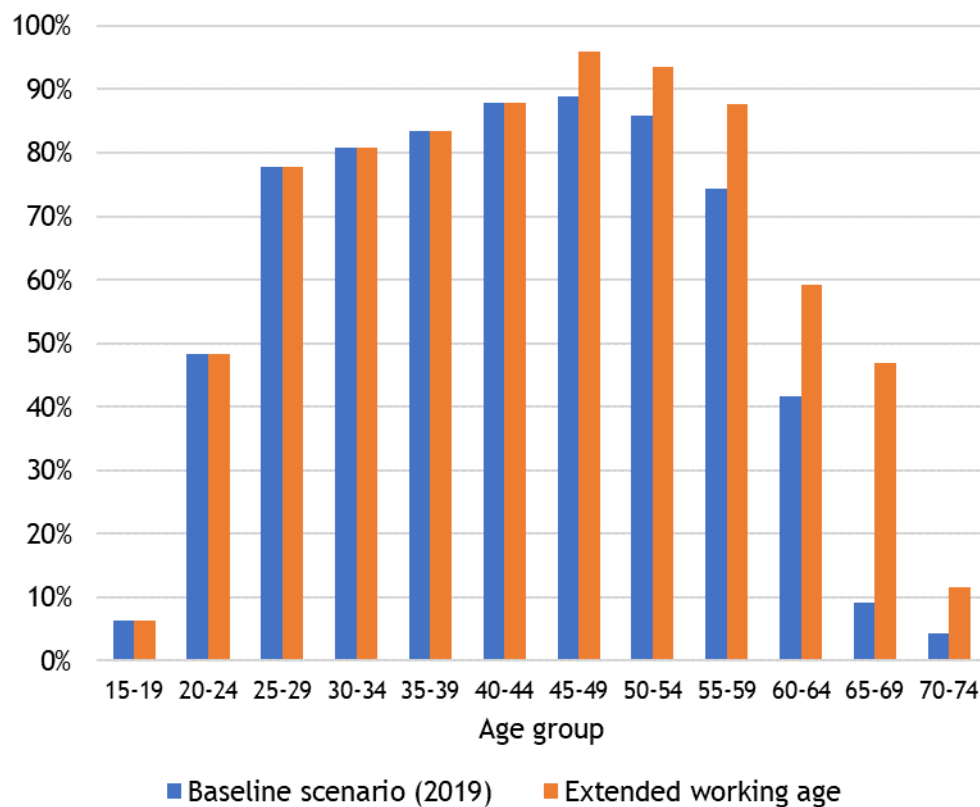
Demo+: +20 000

Demo-: 0



Economic factor - employment

Employment rate by age group



- Extension of working age
- It has moved together with the life expectancy in the last decades
- The life expectancy at birth increases by 4,5/7,1 year till 2050
- Extended working age: + 4 year on the labour market
- It affects workers above the age of 45



Scenarios

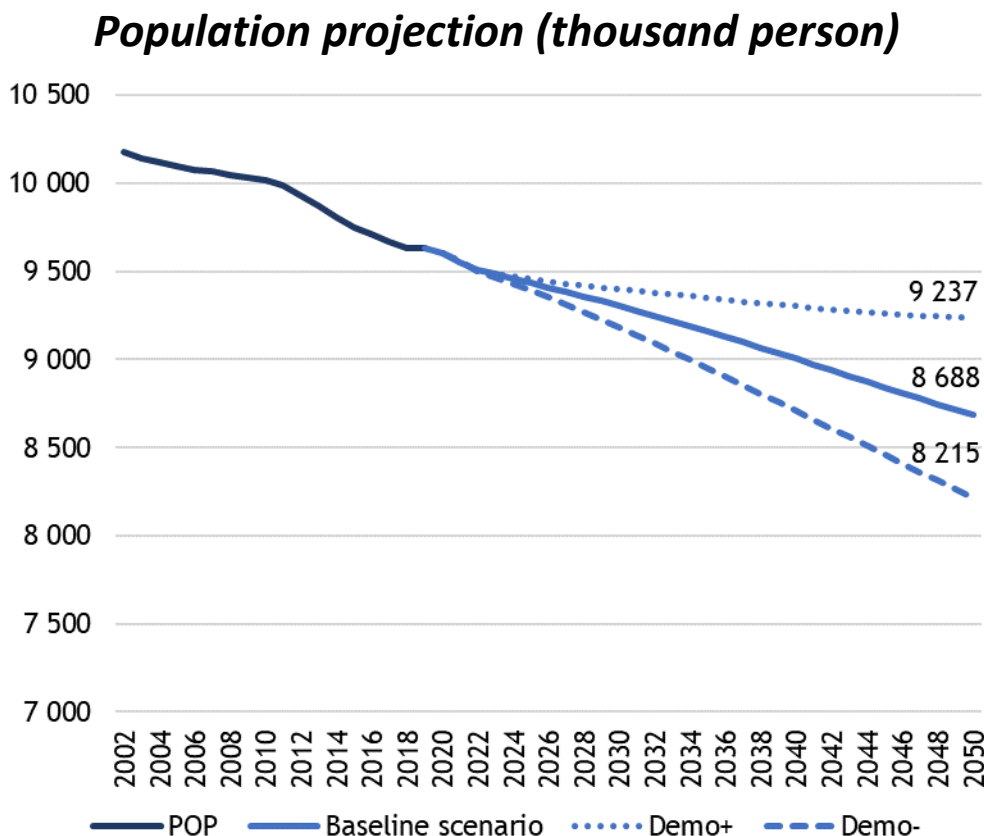
	BASILINE SCENARIO	DEMO+	DEMO-	EXTENDED WORKING AGE	FREEZED IN REAL TERMS
Fertility	1,65	<i>1,85</i>	<i>1,45</i>	1,65	1,65
Mortality	84,1/79,2	<i>83,1/78,2</i>	<i>85,1/80,2</i>	84,1/79,2	84,1/79,2
Migration	10 000	<i>20 000</i>	<i>0</i>	10 000	10 000
Average effective age of retirement	Unchanged	Unchanged	Unchanged	<i>Extended by 4 years</i>	Unchanged
Indexation	Linked to real wages	Linked to real wages	Linked to real wages	Linked to real wages	<i>Freezed in real terms</i>



RESULTS OF THE PROJECTION



Population projection



- Population decline from 1980

- Annual drop: 0,3%

- 2019: 9,6 million (including the mirrors statistics)

Baseline scenario:

- 8,7 million people in 2050

- Annual drop: 0,3%

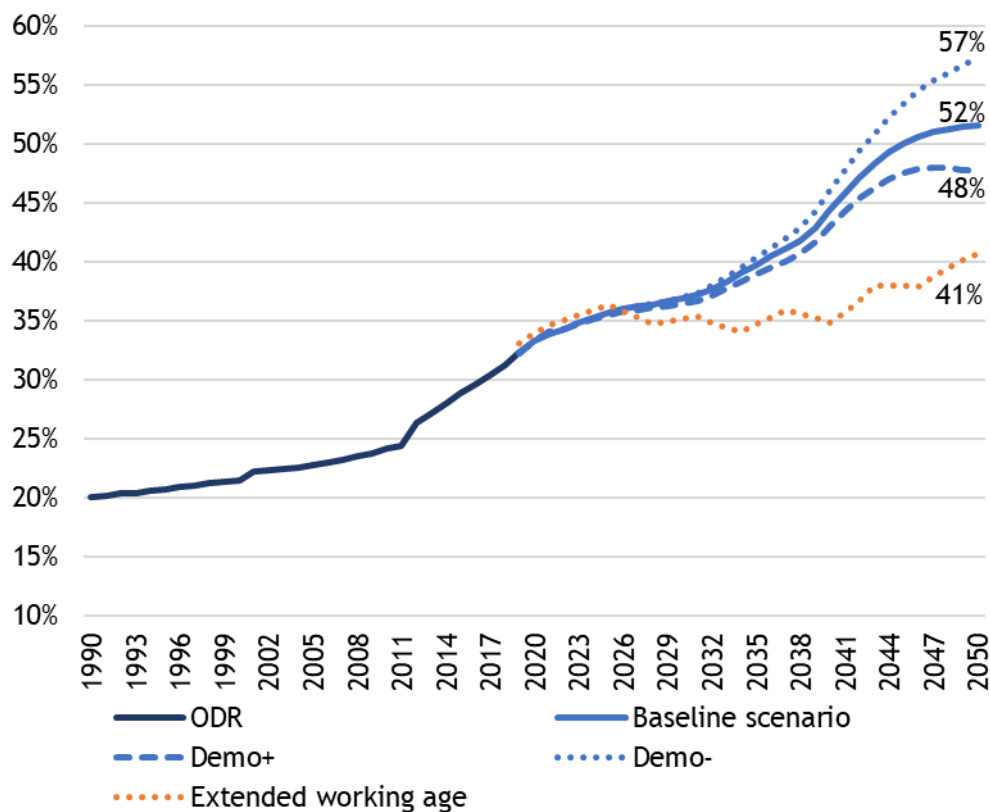
Demo+: 9,2 million

Demo-: 8,2 million



Population projection

Old-age dependency ratio



- Number of **elderly people** compared to the number of people of **working age**
- Usually: $(65+)/ (15-64)$
- Sharp increase in the last decades – **2019:32%**

Baseline scenario

- Jump to 52%

Demo+: 48%

Demo-: 57%

Extended working age:

- **Gradual increase of retirement age**
- From 65-69
- Significant smaller increase

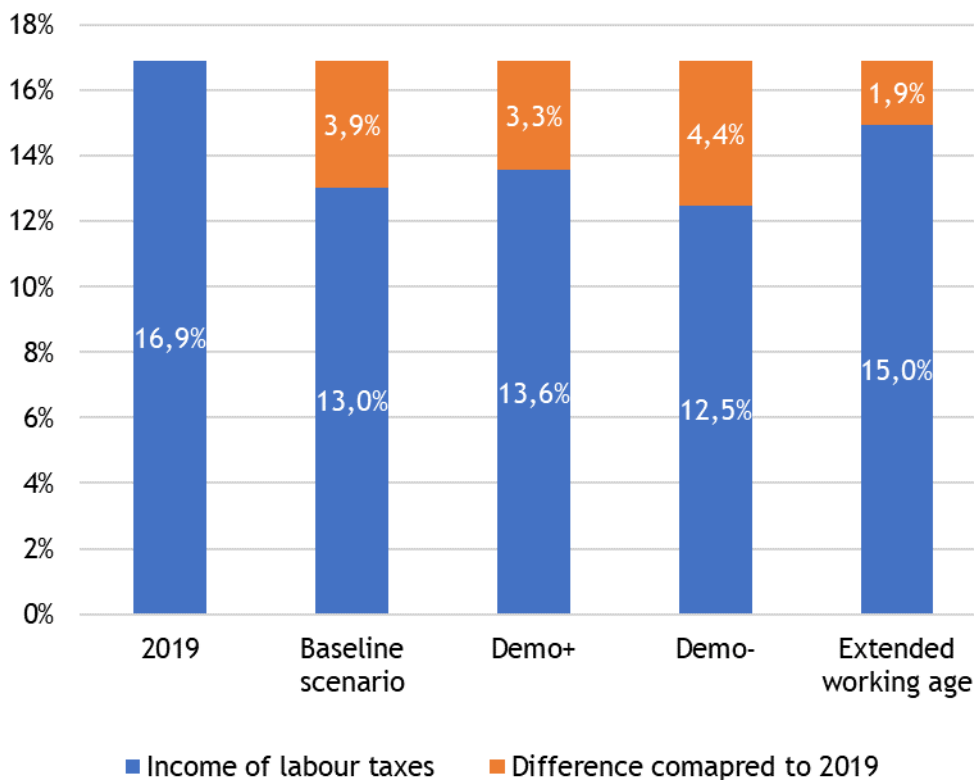


PROJECTED FISCAL BURDEN OF POPULATION AGEING



Fiscal burden

Income of labour taxes in percent of GDP



- All scenarios **fall behind** the current income

- The differences are between 1,9% and 4,4%

Baseline scenario: 3,9%

- Requires a more than 10 percentage point tax increase

Demo+, Demo-

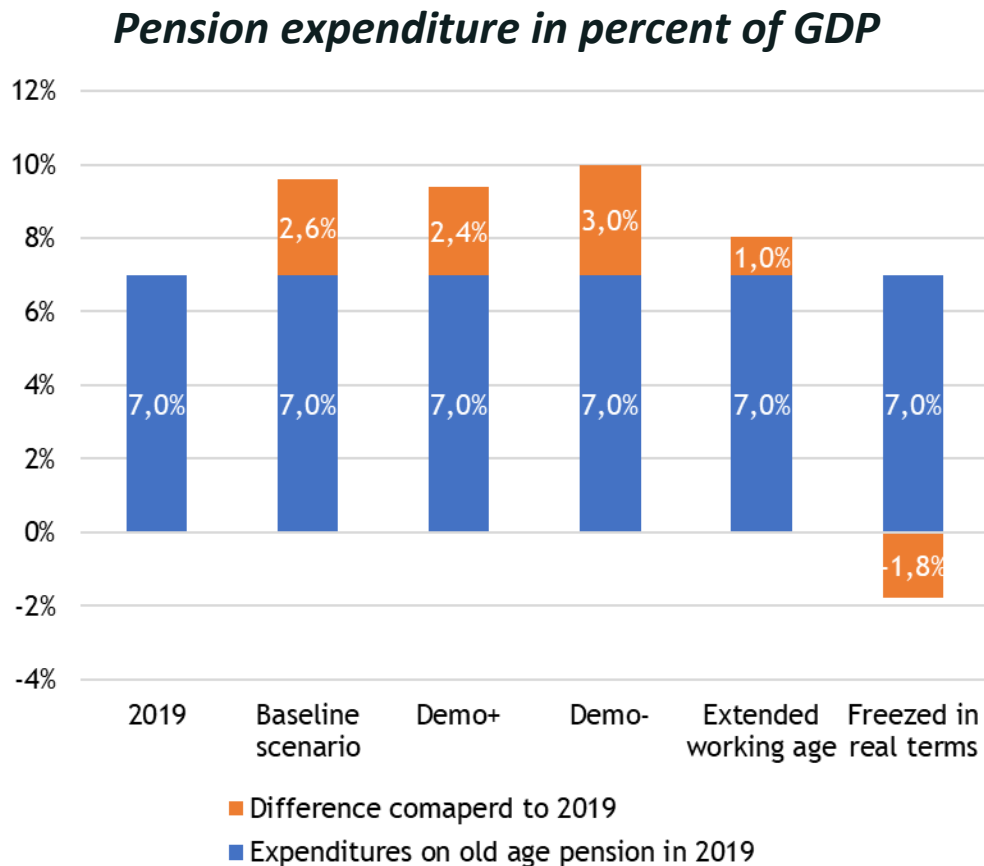
- **Relatively small differences** compared to the baseline

Extended working age

- The **fiscal burden is half** of the baseline scenario



Fiscal burden



- Old age pension expenditure was 7% in 2019

Baseline scenario

- Population ageing increase it by **2,6 pp.**

Demo+, Demo-

- **Small differences** compared to the baseline

Extended working age

- **Significant relief**

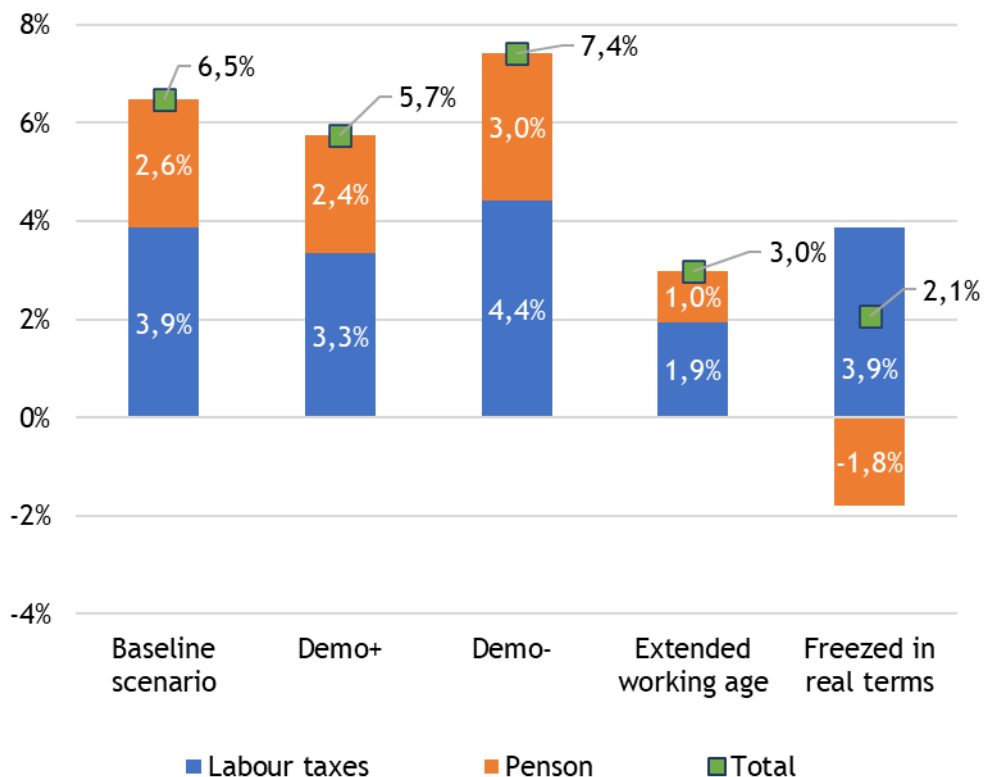
Freezed in real terms

- **The fiscal burden will decrease!**
- This is the **current** regulation!



Fiscal burden

Total fiscal burden of population ageing compared to 2019



- **Total effect:** labour tax + old age pension

Baseline scenario:

- 6,5 pp
- **Demand to intervention**

Demo+, Demo-

- **Relatively small differences**
- Demand to intervention

Extended working age

- **Lower fiscal burden**
- Comes from both channel

Freezed in real terms

- **Lower fiscal burden**
- Comes from the pension channel



Conclusion

- Population ageing is an important issue from the point of fiscal policy
- Demographic factors influence the size of population and the age structure significantly
- Demographic factors has relatively small influence on projected fiscal burden
- The length of working age and the age of retirement have strong impact on fiscal burden
- The indexation is one of the key factor



Literature

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Thank you for your attention!

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